CLAIMS

1. A method of generating a population of T-cells specific for an antigen, said method comprising isolating a population of substantially mature antigen presenting cells (APC), co-incubating the substantially mature APC population with a population of $CD4^+$ T-cells, a population of $CD8^+$ T-cells and a target antigen for a time and under conditions sufficient to generate $CD8^+$ T-cells specific for said antigen.

2. The method of Claim 1 wherein the co-incubation comprises simultaneously admixing two or more of the mature APC, the $CD4^+$ T-cells, the $CD8^+$ T-cells and the target antigen.

3. The method of Claim 1 wherein the co-incubation comprises the sequential addition of one or more of the mature APC, the $CD4^+$ T-cells, the $CD8^+$ T-cells and the target antigen in any order.

4. The method of Claim 1 wherein the mature APC are co-incubated with a cognate reactive antigen to generate a mature APC population expressing the cognate reactive antigen or a T-cell interacting portion thereof (activated APC).

5. The method of Claim 4 wherein the activated APC are co-incubated with a population of $CD4^+$ T-cells.

6. The method of Claim 5 wherein the activated APC/$CD4^+$ T-cells are co-incubated with target antigen.

7. The method of Claim 6 wherein the activated APC/$CD4^+$ T-cells/antigen mixture is co-incubated with $CD8^+$ T-cells.

8. The method of Claim 7 wherein cytotoxic T-cells are selected from the $CD8^+$ T-cells.

9. The method of Claim 5 wherein the $CD4^+$ T-cells are $CD4^+$ $CD25^-$ T-cells.

10. The method of Claim 1 wherein the APC are dendritic cells (DC).

11. The method of Claim 1 wherein the DC are from peripheral blood.

12. The method of Claim 10 wherein the DC express one or more of MHC Class I molecules, MHC Class II molecules, CD1, CD4, CD11c, CD123, CD8α, CD205, 33D1, CD40, CD80, CD86, CD83, CD45, CMRF-44, CMRF-56, CD-209, CD208, CD207 and/or CD206.

13. The method of Claim 1 wherein the antigen is a peptide, polypeptide, protein, nucleic and molecule, carbohydrate molecule, organic or inorganic molecule.

14. The method of Claim 11 wherein the antigen is a peptide.

15. A method for priming T-cells *in vitro* for a target antigen, said method comprising co-incubated together or at different times, mature activated DC, $CD4^+$ T-cells and $CD8^+$ T-cells in the presence of said target antigen for a time and under conditions sufficient for $CD8^+$ cytotoxic T-cells to generate with specificity for said antigen and then isolating said $CD8^+$ T-cells.

16. The method of Claim 15 wherein primed T-cells are generated in from about three to about 20 days.

17. A method of treatment of a subject comprising first identifying a target antigen by screening for primed T-cells reactive to said antigen by the method of co-incubating mature, activated DC, $CD4^+/CD25^-$ T-cell and $CD8^+$ T-cells in the presence of said target antigen for a time and under conditions sufficient for $CD8^+$ cytotoxic T-cells to generate

with specificity for said antigen and then isolating said $CD8^+$ T-cells and then generating a vaccine based on an antigen to which T-cells are capable of being primed *in vitro*.

18. The method of Claim 17 alternatively comprising cloning and expanding the *in vitro* primed cytotoxic T-cells and then returning same to a subject.

19. The method of Claim 17 alternatively comprising isolating the $DC/CD4^+$ T-cells primed for a particular antigen and administering same to a subject.

20. The method of Claim 17 or 18 or 19 wherein the subject in a human, livestock animal, laboratory test animal, a captured wild animal or an avian species.

21. The method of Claim 20 wherein the subject is a human.

22. The method of Claim 1 or 17 for the treatment of hepatitis type A, hepatitis type B, hepatitis type C, influenza, varicella, adenovirus, herpes simplex type I (HSV-I), herpes simplex type II (HSV-II), rinderpest, rhinovirus, echovirus, rotavirus, respiratory syncytial virus, papilloma virus, papova virus, cytomegalovirus, echinovirus, arbovirus, hantavirus, coxsackie virus, mumps virus, measles virus, rubella virus, polio virus, human immunodeficiency virus type I (HIV-I) and human immunodeficiency virus type II (HIV-II).

23. The method of Claim 1 or 17 for the treatment of infection by *Mycobacterium, Rickettsia, Mycoplasma, Neisseria* and *Legionella*.

24. The method of Claim 1 or 17 for the treatment of infection by *Leishmania, Coccidioidomycoses* and *Trypanosoma*.

25. The method of Claim 1 or 17 for the treatment of infection by *Chlamydia* and *Rickettsia*.

26. The method of Claim 1 or 17 for the treatment of fibrosarcoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, chordoma, angiosarcoma, endotheliosarcoma, lymphangiosarcoma, lymphangio-endotheliosarcoma, synovioma, mesothelioma, Ewing's tumor, leiomyosarcoma, rhabdomyosarcoma, colon carcinoma, pancreatic cancer, breast cancer, ovarian cancer, prostate cancer, squamous cell carcimona, basal cell carcinoma, adenocarcinoma, seat gland carcinoma, sebaceous gland carcinoma, papillary carcinoma, paillary adenocarcinomas, cystadenocarcinoma, medullary carcinoma, bronchogenic carcinoma, renal cell carcinoma, hepatoma, bile duct carcinoma, choriocarcinoma, seminoma, embryonal carcinoma, Wilms' tumor, cervical cancer, testicular tumor, lung carcinoma, small cell lung carcinoma, bladder carcinoma, epithelial carcinoma, glioma, astrocytoma, medulloblastoma, craniopharyngioma, ependymoma, pinealoma, hemangioblastoma, acoustic neuroma, oligodendroglioma, meningioma, melanoma, neuroblastoma, retinoblastoma; leukemias, e.g. acute lymphocytic leukemia and acute myelocytic leukemia (myeloblastic, promyelocytic, myelomonocytic, monocytic and erythroleukemia); chronic leukemia (chronic myelocytic (granulocytic) leukemia and chronic lymphocytic leukemia); and polycythemia vera, lymphoma (Hodgkin's disease and non-Hodgkin's disease), multiple myeloma, Waldenstrom's macroglobulinemia and heavy chain disease.

27. A population of T-cells primed for an antigen generated by the method of Claim 1 or 17.

28. A pharmaceutical composition comprising the primed T-cells of Claim 28.